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gene expression in cynomolgus monkeys, that IL-1β is expressed in both early and advanced stages of diet-induced atherosclerosis, as well as in monkey monocytes/macrophages, and suggest that this model can be employed to study the role of IL-1β in atherogenesis.

Extensive Oxidation of LDL Induces Particle Aggregation and Altered Macrophage Recognition

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Although studies have reported structural and functional changes in LDL following oxidation (ox-), none have described such changes with increasing degrees of ox. We describe time-dependent changes in chemical and structural composition of ox-LDL and how they affect macrophage interaction. LDL (500 μg/ml) was incubated with 10 μM Cu^{++} at 20°C for up to 25 hr. Time-dependent increases in conjugated dienes, fluorescence (360ex/430em), and particle aggregation (aggr.) were found, the latter increasing with LDL concentration used. Similar degrees of LDL ox. gave fragments of apo B of the same size. Extensive LDL ox. induced aggr. of apo B, possibly caused by covalent cross-linking of apo B, since apo B from aggr. ox-LDL but not from vortex-aggr. LDL was insoluble in SDS. Mildly ox-LDL eg. 8 hr in Cu^{++} (unaggr.) and the soluble portion of extensively ox-LDL (25 hr), were recognized by the scavenger receptor on mouse peritoneal macrophages, (inhibition of ^{125}I-ox-LDL macrophage degradation by acetyl LDL). By contrast, neither acetyl-LDL nor polyinosinic acid inhibited macrophage degradation of aggr. ox-LDL, suggesting internalization by an alternate process. Thus, ox. of LDL leads to different structural and functional characteristics, depending on the degree of ox.

Identification of a Lipid-Free Apo(a)–Apo B Complex in the $d > 1.2$ Fraction of Plasma

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Although studies have reported the binding of apo(a)–apo B complexes eg. (a)–B to different lipoprotein species, identification of lipid-free (a)–B in plasma has not been reported. To identify such complexes, we subjected human plasma to density gradient ultracentrifugation and documented immunoreactive apo(a) and apo B in the $d > 1.2$ fraction by appropriate RIAs. Moreover (a)–B was similar to delipidated Lp(a) in 1% agarose electrophoresis. On non-denaturing PAGE (2.5–7.5% gradient), an MW of 10'KD was found for the apo(a)–B complex. On SDS-PAGE, one major band was found under non-reducing conditions which immunostained for both apo(a) and apo B. Under reducing conditions, two major bands were seen, one staining for apo(a) and one for apo B. (a)–B from the $d > 1.2$ plasma fraction bound and could be eluted from a Sepharose–anti-apo(a) column. This fraction containing only apo(a) and apo B, was lipid free, and mimicked delipidated Lp(a) by the above-described procedures. Thus, plasma contains a lipid-free apo(a)–apo B complex that could bind under specific metabolic conditions to different lipoprotein fractions.

Somatostatin and Its Analogue, Angiopeptin, Inhibit Adhesion of Leukocytes to Rat Heart Endothelial Cells

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The effect of somatostatin (ST) and its analogue Angiopeptin (AP) on *in vitro* adhesion of rat spleen leukocytes (LC) to unstimulated and IL-1b stimulated rat heart endothelial cells (EC) was studied. ST and AP inhibited LC adhesion to EC. The strongest inhibition was observed after 24 hours exposure. Unstimulated EC bound 208±89 LC/mm². Treatment with ST or AP (0.6–10 μM) for 24h decreased binding to 124±35 LC/mm² and 118±60 LC/mm², respectively ($p<0.001$). EC stimulated for 4h with IL-1b (100U/ml) bound 1,045±52 LC/mm². ST (0.6 μM) reduced binding to 292±31 LC/mm² ($p<0.01$). AP (1 μM) was less potent and reduced binding to 811±75 LC/mm² ($p<0.05$). However, effect of AP was longer lasting (up to 24h). In conclusion, Angiopeptin may have a potential application in immune related cardiac vascular disease due to its prolonged inhibitory effect on IL-1b induced LC-EC adhesion.

Plasma Lipoproteins Specifically Bind Thrombospondin (TSP)

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The present study explored the potential interaction between TSP and plasma lipoproteins using an *in vitro* binding assay. Human plasma lipoproteins VLDL, LDL, HDL, and apolipoproteins AI and AII were immobilized on microtiter plates and TSP binding was determined immunochemically with a polyclonal anti-TSP antibody. We found that human TSP bound saturably to all the plasma lipoproteins tested. Binding was maximal in the presence of 1 mM Ca^{+2}/Mg^{+2} and was only partially inhibited with 2 mM EDTA. RGD peptides had no effect on binding. In contrast, TSP binding to fibrinogen was completely ion dependent. The concentrations of TSP that produced half maximal binding for VLDL, HDL, LDL, apo AI, and apo AII were 36.8, 12.4, 23.7, 6.9, and 18 nM, respectively. These data demonstrate that TSP can specifically interact with lipoproteins and suggest a potential role for TSP in the metabolism of lipoproteins, in their deposition into the vessel wall, and in atherogenesis.

The Association Between Carotid Arterial Wall Thickness and Active and Passive Cigarette Smoking

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The effect of cigarette smoking on the carotid artery far wall thickness was considered in the white population from the Atherosclerosis Risk in Communities (ARIC) study. The population was divided into 2,460 current smokers, 3,448 past smokers, 2,440 who never smoked but reported weekly exposure to environmental cigarette smoke (ETS or "passive smoking"), and 1,306 who never smoked with no exposure to ETS. Age proved to affect the differences between smoking status classes ($p \leq 0.0001$), while gender had no effect ($p > 0.05$). Within 5-year age groups there was a consistent gradient of wall thickness across the smoking exposure categories (mean±S.E. in millimeters):

Age group	No. exposure	ETS only	Past smoker	Current smoker
45–50	0.63±0.006	0.66±0.004	0.68±0.005	0.69±0.006
51–55	0.68±0.008	0.69±0.006	0.75±0.006	0.77±0.008
56–60	0.71±0.007	0.74±0.006	0.82±0.008	0.84±0.010
61–65	0.77±0.011	0.78±0.009	0.88±0.010	0.90±0.015

Using analysis of covariance, differences between no exposure and ETS were significant only at younger ages ($p<0.0001$), while differences between ETS and past smoking, or between past and current smoking, were significant only for older ages. This graded relationship underscores the importance of smoking as a risk factor for atherosclerosis.